

Serial No. 10/622,467

Docket No. HI-0169

Amdt. dated January 5, 2007

Reply to Office Action of October 18, 2006

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Presented) A Private Branch Exchange (PBX) apparatus for transmitting and receiving CID (Caller ID) comprising:

an Analog Trunk Convergency (ATC) circuit for converging with an exchange in the PBX connected to the exchange;

a Subscriber Line Convergency (SLC) circuit for transmitting CID and/or data by converging with a subscriber line connected to each port;

a control circuit for controlling a CID service for the analog trunk and the subscriber line circuits;

a data path control circuit for controlling data transmission through a data path between the ATC circuit and the SLC circuit;

a CID service circuit, the CID service circuit including a CID and signal detecting circuit and a CID and signal transmitting circuit that each perform digital signal processing on the CIDs and signals;

a signal transmitting/detecting circuit for performing signal transmitting and/or detecting through the data path; and

a switching circuit for connecting the data path between the CID service circuit , and the ATC circuit and the SLC circuit, and for selectively switching the data path between the signal transmitting/detecting circuit and the CID service circuit.

2. (Previously Presented) The apparatus according to claim 1, wherein the ATC circuit comprises:

a plurality of ports, each port comprising a converting circuit for converting the CID received from a public exchange through a subscriber line or office line into analog data and transmitting the data to the switching circuit through a highway as a data path, a ring detecting circuit for detecting a ring signal received from the public exchange through the subscriber line, and a holding line for establishing and holding the subscriber line; and

a local detecting circuit connected to the ports, for controlling CID transmission through a system path.

3. (Previously Presented) The apparatus according to claim 1, wherein the SLC circuit comprises:

a plurality of ports, each of the ports comprising: a converting circuit for converting the CID transmitted through the switching circuit into a digital signal, a ring transmitting circuit for transmitting a ring to an affected receiver terminal in response to a ring

transmission message from the local control block, and an off-hook detecting circuit for detecting off-hook status of the affected terminal of a receiver; and

a local control circuit for controlling the transmission of the CID transmitted through a system bus.

4. (Previously Presented) An apparatus in a Private Branch Exchange (PBX) for transmitting and receiving a Caller ID (CID) comprising:

a CID detecting circuit for detecting a system signal and/or a CID received through a highway as a data path connected by a switching block, and storing the signal and/or the CID in a corresponding area per port inside a CID detection memory block;

a CID transmitting circuit for transmitting the CID to an affected receiver terminal through the highway as the data path;

a CID detection memory for assigning a memory area to each of subscriber ports of the SLC circuit and storing the signal and/or the CID for a corresponding port;

a CID transmitting memory for storing a system signal and/or a CID in each port, in order to transmit a predetermined CID to an affected receiver terminal when a ring signal is transmitted to the affected receiver terminal; and

a local control circuit for controlling CID transmission to a corresponding port in a Subscriber Line Convergency (SLC) circuit through a system bus by reading the signal and/or

the CID of each port from the CID detection memory,

wherein the apparatus detects the CID or the system signal for a transmitted or received call at an Analog Trunk Convergency (ATC) circuit and the SLC circuit in the PBX and transmits the detected CID or signal to a receiver terminal.

5. (Previously Presented) The apparatus according to claim 4, wherein the CID detecting circuit comprises:

a highway convergency circuit for receiving the signal and/or the CID by converging with the data path connected by the switching block;

a CID detecting circuit for detecting the CID received from the highway convergency block;

a system signal detecting circuit for detecting a system signal transmitted to the highway convergency block; and

a memory interface circuit for interfacing with the CID detection memory, to store the CID detected by the CID detecting circuit and the signal detected by the system signal detecting circuit in a predetermined memory area of a corresponding port.

6. (Previously Presented) The apparatus according to claim 4, wherein the CID transmitting circuit comprises:

a memory interface circuit for interfacing CID that is transmitted from the CID transmitting memory;

a CID transmitting circuit for transmitting the CID from the CID transmitting memory to a highway convergency block, in order to transmit the CID to the switching block;

a system signal transmitting circuit for transmitting the system signal received from the CID transmitting memory; and

a highway convergency circuit for transmitting the signal and/or the CID by converging with the highway as the data path connected to the switching block.

7. (Previously Presented) A method for transmitting and receiving a Caller ID (CID) in a Private Branch Exchange (PBX), the method comprising:

establishing a line with the PBX through a general switched telephone network;

converting a CID received through the line, and storing the CID through a switching circuit in a CID service circuit at the PBX that includes at least one memory; and

transmitting all or part of the stored CID to a terminal, through the switching circuit and/or a Subscriber Line Convergency (SLC) circuit and display the CID on the terminal.

8. (Previously Presented) A method for transmitting and receiving a Caller ID (CID) in a Private Branch Exchange (PBX), the method comprising:

storing CIDs in a first memory in a CID service circuit at the PBX;

storing preassigned CIDs for transmission out of the stored CIDs in a second memory in the CID service circuit; and

transmitting the preassigned CIDs stored in the second memory to a caller ID terminal through a switching circuit and/or a Subscriber Line Convergency (SLC) circuit.

9. (Previously Presented) The method according to claim 8, wherein the first memory comprises a caller detection memory of the CID service circuit.

10. (Previously Presented) The method according to claim 8, wherein a system control circuit stores the preassigned CIDs out of the stored CIDs in the second memory through a control circuit of the CID service circuit, the second memory comprising a CID transmitting memory .

11. (Previously Presented) The method according to claim 8, wherein the storing CIDs in the first memory comprises:

receiving a ring from a public exchange to an Analog Trunk Convergency (ATC) circuit in a PBX;

detecting, at a ring detecting block, whether the ring is received, and reporting, at a

local control block, to a system control circuit through a system bus regarding the reception of the ring;

if receiving the ring is reported, connecting, at the system control circuit in the PBX, a highway as a data path of a corresponding port to a highway of a Caller ID (CID) service circuit through a switching block;

detecting, at a CID detecting block, the CID through a highway convergency circuit based on a predetermined signal; and

storing the detected CID in a predetermined area per port in a CID detection memory, through a memory interface block.

12. (Previously Presented) The method according to claim 8, wherein storing prearranged CIDs for transmission in the second memory comprises:

if receiving the call is reported from the Analog Trunk Convergency (ATC) circuit, transmitting, at a system control block, a ring transmission message to a local control circuit in a Subscriber Line Convergency (SLC) circuit using a system bus through a system bus control block, and simultaneously, transmitting a system signal and/or a caller ID message; and

if the local control circuit receives at least one of the ring transmission message, the system signal, and the caller ID message, transmitting, at the local control block, the signal and/or storing the system signal and the caller ID in a caller ID transmitting memory.

13. (Original) The method according to claim 8, further comprising:

displaying the transmitted CIDs on the caller ID terminal.

14. (Previously Presented) A method for transmitting and receiving a Caller ID (CID) in a Private Branch Exchange (PBX), the method comprising:

receiving a ring from a public exchange to an Analog Trunk Convergency (ATC) circuit in a PBX;

detecting, at a ring detecting block, whether the ring is received, and reporting, at a local control block, the reception of the ring to a system control circuit through a system bus;

if receiving the ring is reported, connecting, at the system control circuit in the PBX, a highway as a data path of a corresponding port to a highway of a Caller ID (CID) service circuit at the PBX through a switching block;

detecting, at a CID detecting block, the CID through a highway convergency circuit based on a predetermined signal;

storing the detected CID in a predetermined area per port in a CID detection memory of the CID service block, through a memory interface block

if receiving the ring is reported from the ATC circuit, transmitting, at a system control block, a ring transmission message to a local control circuit in a Subscriber Line Convergency (SLC) circuit using a system bus through a system bus control block, and

simultaneously, transmitting a system signal and/or a caller ID message;

if the local control circuit receives at least one of the ring transmission message, the system signal, or the caller ID message, transmitting, at the local control block, the signal and/or storing the system signal and the caller ID in a caller ID transmitting memory in the CID service block;

reading, at a system control block, the system signal and/or the CID stored in the CID transmitting memory, and transmitting the CID to the SLC circuit through a switching circuit and a system bus; and

if the local control circuit in the SLC circuit provides the CID to a corresponding port, transmitting the CID through a subscriber line and displaying the CID on a caller ID phone at a subscriber side.

15. (Currently Amended) A PBX communication system ~~CID service circuit in a PBX~~ comprising:

a CID service circuit, the CID service circuit comprising:

a first memory configured to receive and store a Caller ID (CID);

a second memory configured to store preassigned CIDs out of the stored CIDs for transmission; and

a switching circuit configured to transmit the CIDs stored in the second

memory to a caller ID terminal.

16. (Previously Presented) The communication system of claim 15, further comprising:

a Subscriber Line Convergency (SLC) circuit configured to receive the CIDs from the switching circuit and to route the CIDs to the caller ID terminal.

17. (Original) The communication system of claim 15, wherein the first memory is a caller detection memory of a CID service block.

18. (Original) The communication system of claim 15, wherein the second memory is a CID transmitting memory.

19. (Previously Presented) The communication system of claim 18, further comprising:

a system control circuit configured to store the preassigned for transmission in the CID transmitting memory, through a control circuit of a CID service circuit.

20. (Previously Presented) The communication system of claim 15, further

comprising:

an Analog Trunk Convergence (ATC) circuit configured to receive a ring from a public exchange;

a ring detecting circuit configured to detect whether the ring is received, and to report the reception of the ring;

a system control circuit in the network exchange, configured to connect a data path of a corresponding port to a Caller ID (CID) service circuit through a switching block, if the ring is reported as received;

a CID detecting circuit configured to detect the CID through a highway convergence circuit based on a predetermined signal; and

a memory interface circuit configured to store the detected CID in a predetermined area per port in a CID detection memory.

21. (Previously Presented) The communication system of claim 15, further comprising:

a system control circuit configured to transmit a ring transmission message to a local control circuit in a Subscriber Line Convergence (SLC) circuit, and to transmit a system signal and/or a caller ID message, if the call is reported from an Analog Trunk Convergence (ATC) circuit as received; and

Serial No. **10/622,467**

Docket No. **HI-0169**

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wherein the second memory id configured to store a system signal and/or caller ID, if the local control circuit receives at least one of the ring transmission message, the system signal and caller ID.

22. (Previously Presented) The communication system of claim 15, wherein the system control circuit is configured to transmit the ring transmission message and to transmit the system signal simultaneously.

23. (Original) The communication system of claim 15, wherein the network exchange is a Private Branch Exchange (PBX).

24. (Original) The communication system of claim 15, wherein the caller ID terminal is a phone configured to display the CID.